4.0 OVERVIEW OF RI/FS

The RI/FS for the Pines Area of Investigation will be conducted in accordance with AOC II and the SOW. The scope, objectives and approach to the RI/FS are discussed in this section. Finally, this section identifies the reports that will be prepared as the RI/FS progresses.

4.1 Scope of RI/FS

Implementation of the RI for the Pines Area of Investigation will obtain the data necessary to conduct the HHRA and ERA to appropriately evaluate potential current and reasonably foreseeable future risks to human health and ecological receptors. If an unacceptable risk is identified, the FS will evaluate alternative remedial actions to address the risk.

The RI/FS will be conducted consistent with the "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (USEPA, 1988) and additional appropriate USEPA guidance, as well as any additional requirements in AOC II and the SOW.

4.2 Overall Objectives of RI/FS

As per the SOW, the overall objectives of the RI/FS are:

(a) To determine the nature and extent of constituents in the Area of Investigation and any threat to the public health, welfare, or the environment caused by releases or threatened releases of constituents related to CCBs at or from the Area of Investigation, by conducting a Remedial Investigation.

(b) To collect data necessary to adequately characterize, for the purpose of developing and evaluating effective remedial alternatives:

i) Whether the water service extension installed pursuant to AOC I and AOC I as amended is sufficiently protective of current and reasonable future drinking water use of groundwater in accordance with Federal, State, and local requirements;

ii) Whether there are significant human health risks at the Area of Investigation associated with exposure to CCBs; and

iii) Whether CCB-derived constituents may be causing unacceptable risks to ecological receptors.

(c) To determine and evaluate alternatives for remedial action to prevent, mitigate, control or eliminate risks posed by any release or threatened release of constituents related to CCBs at or from the Area of Investigation, by conducting an FS.

4.2.1 Objectives of the SMS

The SMS (ENSR, 2005a) provided a review of available information, summarized that information into a preliminary CSM, and based on the CSM, identified data gaps to be addressed in the RI.

4.2.2 Objectives of the FSP

The objectives of the work proposed in the FSP are to fill the data gaps, and to address the strategy items identified in the SMS. To implement the RI in an efficient and focused manner, it is necessary to first obtain the information needed to complete the CSM, and then refine that model as needed to answer outstanding questions or fill data gaps. To achieve these objectives, the RI will be implemented in a phased approach. To understand this phased approach, it is necessary to understand how the data will be evaluated. The data collected during the RI are to be used to conduct both a human health and an ecological risk assessment.

4.2.3 Objectives of the Human Health Risk Assessment

One objective of the RI and the HHRA is to determine if groundwater quality is impacted by CCB-derived constituents in portions of the Area of Investigation that do not have municipal water service, and if so, whether remedial actions need to be evaluated for these areas. Another objective of the HHRA is to determine whether CCBs outside of Yard 520 but within the Area of Investigation pose a risk to human health via direct contact. In addition, the HHRA will evaluate potential human exposure to CCB-derived constituents that may have migrated to surface water and sediments, either due to run-off or from groundwater transport.

4.2.4 Objectives of the Ecological Risk Assessment

The ERA will be conducted to determine whether there are risks posed to ecological receptors by CCB-derived constituents present in the aquatic environment, most notably the Brown Ditch system, but also including other relevant surface water bodies and wetland areas within the Area of Investigation. In addition, potential risks to receptors within the terrestrial environment are to be addressed where CCBs are present at the ground surface in locations that overlap areas of significant ecological habitat.

4.3 FSP Approach

To achieve these objectives, it is first necessary to further develop the CSM by using the following components of the RI:

- Characterization of potential sources, including distribution of CCBs;
- Geologic/hydrogeologic characterization;
- Characterization of groundwater/surface interactions;
- Characterizing the nature and extent of CCB-derived constituents in groundwater and other media, including fate and transport analyses of CCB-derived constituents; and
- Characterization of ecosystems/habitats.

The approach to this further characterization of the Area of Investigation is presented below. The investigations are discussed by system, followed by a discussion of the sampling to be conducted to evaluate chemical and physical characteristics in each medium. A discussion of how this information will be used in a phased approach to evaluate potential human health and ecological risks is then presented.

4.3.1 Evaluation of CCBs as Potential Sources

CCBs have been identified as potential sources within the Area of Investigation including CCBs deposited at Yard 520 and the potential presence of CCBs used as fill outside of Yard 520. The chemical and physical characteristics of these CCBs will be evaluated through implementation of two previously-submitted sampling plans: the Municipal Water Service Extension (MWSE) Sampling and Analysis Plan (SAP) (ENSR, 2004), approved by USEPA in March 2005, and the Yard 520 SAP (ENSR, 2005b), approved by USEPA in August 2005. Additional investigation activities for CCBs under the FSP include sampling of CCBs from Yard 520, and a visual inspection program to determine where suspected CCBs are present outside Yard 520; and laboratory verification (both chemical and physical) to determine whether the suspected CCBs are CCBs or another type of fill material. Based on these evaluations, the need for further information regarding the nature or extent of suspected CCBs will be determined and follow up work implemented if necessary.

Suspected CCBs will be evaluated for both chemical and physical characteristics. Suspected CCB sampling will be conducted under the proposed MWSE SAP (ENSR, 2004), the Yard 520 SAP (ENSR, 2005b) and the FSP. The MWSE SAP was conditionally approved by USEPA in March 2005. The Yard 520 SAP was conditionally approved by USEPA in August 2005. Sampling was conducted under the MWSE SAP from September 2004 through August 2005. Initial sampling under the Yard 520 SAP will be implemented in September 2005. These two SAPs were developed to characterize the chemical composition and physical characteristics of suspected CCBs outside of Yard 520 and to identify appropriate analytical parameter groups for the RI/FS.

Three CCB samples from the Type II (North) Area at Yard 520 will be collected and analyzed for Target Analyte List (TAL) metals. The data collected from these samples in conjunction with results from samples collected under the MWSE SAP will be used to focus the proposed analytical parameter list for the RI/FS.

The data obtained will be compared to the preliminary human health and ecological screening levels (see Volumes 5 and 6 of this RI/FS Work Plan for further detail on these screening levels). These data will be used to determine if direct contact to the CCBs by either human or ecological receptors poses potential risks above USEPA target risk levels and/or whether concentrations are consistent with background levels. In addition, these data will be used in conjunction with groundwater quality data to assess the extent to which the CCBs may be contributing to the presence of boron and molybdenum, and/or other CCB-derived constituents, above appropriate screening levels in groundwater.

After suspected CCB collection and investigation activities detailed in the SAPs and the FSP are completed, the need for additional data collection activity will be considered.

In addition, geologic conditions in the southern portion of the Area of Investigation will be evaluated by researching the presence or absence of a surficial aquifer in this area. Additional details are provided in the FSP. According to studies conducted by the USGS (e.g., Shedlock et al., 1994), a surficial aquifer may not be present in this area, or may not be present with sufficient capacity to support a drinking water supply. If a surficial aquifer is not present or useable in the southern portion of the study area and there is no potential for CCB-derived constituents to be present in other aquifers in this area, further investigation of CCB-related constituents in groundwater in this area is not warranted.

4.3.2 Geology/Hydrogeology Characterization

The objective of the characterization of geology and hydrology is to provide geologic information to refine the CSM. This objective will be achieved by installing monitoring wells/piezometers, logging the geologic materials encountered, collecting groundwater and surface water level measurements from wells and staff gauges on a seasonal basis, and conducting hydraulic testing (i.e., slug tests). Geologic cross-sections will be prepared based on the geologic data collected. A numerical groundwater flow model will be constructed to quantify the direction and rates of groundwater flow based on the hydrogeologic data collected. The results of these investigations will be evaluated to determine whether additional information would be needed from an additional phase of investigation.

4.3.3 Groundwater – Surface Water Interactions

The interaction between groundwater and surface water will be evaluated to understand where and how much groundwater discharges/recharges to Brown Ditch, the rates of surface water flow in Brown Ditch, and seasonal changes. Data collection includes the installation of piezometers adjacent to staff gauges and measurements of flow in Brown Ditch. The groundwater and surface water flow rates will

also be measured. If indicated by the results of the initial groundwater investigation, these interactions will be evaluated for additional water bodies in an additional phase of investigation.

4.3.4 Nature and Extent of CCB-Derived Constituents in Groundwater and the Environment

During the RI, samples of groundwater, surface water, sediment, and suspected CCBs will be collected and analyzed for chemical and physical characteristics for both verification and characterization purposes. This sampling and analysis will be the basis for evaluating the presence of CCB-derived constituents in these media, developing an understanding of the environmental chemistry of CCB-derived constituents versus constituents present in groundwater due to other potential sources, and evaluating the fate and transport of CCB-derived constituents in the environment. Depending on the information then available, an additional phase of sampling may be warranted.

Groundwater quality. Information pertaining to groundwater quality will be gathered for three key areas:

1. The area directly north of Yard 520 (labeled South Area on Figure 1-1) where municipal water has been provided;

2. The area northeast of Yard 520 (labeled North Area on Figure 1-1) where municipal water has been provided; and

3. The remainder of the Area of Investigation, primarily where there is no municipal water service.

The nature and extent of CCB-derived constituents in groundwater in these areas will be determined to the extent necessary to adequately evaluate potential current and reasonably foreseeable future risks. This includes developing an understanding of general groundwater quality conditions in these areas as well as upgradient concentrations through the sampling and analysis of groundwater. Four seasonal sampling events will be conducted for groundwater quality. Geochemical conditions affecting migration will also be evaluated. The need for any additional sampling activities will be determined after the data are evaluated.

Surface water and sediment quality. Data on surface water and sediment quality are necessary to support the evaluation of the potential human health and ecological risk associated with CCB-derived constituents in Brown Ditch. Investigations evaluating surface water and sediment quality include synoptic surface water samples and sediment samples in the various branches of Brown Ditch, and in upgradient/reference areas. It is anticipated that an additional investigation would be needed for further surface water and/or sediment quality only if groundwater containing CCB-derived constituents is found to discharge to other surface water bodies or wetlands, or if there is significant downstream transport of CCB-derived constituents in Brown Ditch.

4.3.5 Ecological Setting/Habitat

Habitat identification and assessment will be conducted to support aquatic and terrestrial investigations, as well as to support the ERA. Initial work will focus on evaluating aquatic habitats, such as benthic and fish communities potentially found in the drainage ditches and other relevant water bodies as well as terrestrial habitats located in areas potentially affected by CCBs placed as fill.

General ecological habitats will be identified from a combination of maps, aerial photographs, previous surveys and inventories (including those provided by National Park Service) and other available literature sources. Based on this information, a preliminary ecological habitat map will be prepared, which will be ground-truthed by field reconnaissance. It is anticipated that additional investigations, consisting of an evaluation of additional wetland or terrestrial habitats, would be conducted only if necessary based on the results of the evaluation of potential sources and the groundwater investigation.

4.4 Phased Approach for the Human Health Risk Assessment

The human health risk assessment will be based on data collected for groundwater, CCBs, surface water, and sediments.

4.4.1 Groundwater

Objective: To determine if groundwater quality is impacted by CCB-derived constituents in the portions of the Area of Investigation that do not have municipal water service, and if so, whether remedial actions need to be evaluated.

Approach: A geologic evaluation will be made to determine whether the surficial aquifer is present in the south portion of the Area of Investigation. Data collected in the RI will be used to determine groundwater flow directions and groundwater quality, and to determine the locations and concentrations of CCB-derived constituents in groundwater within the Area of Investigation. A drinking water risk assessment will be conducted for the area that does not have municipal water service and where CCB-derived constituents are identified as constituents of potential concern (COPCs) using the methods as presented in the HHRA Work Plan.

4.4.2 Surface Water/Sediment

Objective: To determine if recreational use of the Brown Ditch system, and other surface water bodies or wetlands, as appropriate, pose a direct-contact risk to human health.

Approach: Data collected in the RI will be used to conduct a human health risk evaluation of Brown Ditch surface water and sediments. An evaluation of local background or reference locations will be included.

4.4.3 CCBs

Objective: To determine whether direct contact to CCBs located within the Area of Investigation outside of Yard 520 pose a direct-contact human health risk.

Approach: Data collected will include analyses of samples taken under the MWSE SAP (ENSR, 2004) and the Yard 520 SAP (ENSR, 2005b). In addition, a study on the bioavailability of arsenic in CCBs may be conducted, as detailed in the HHRA Work Plan. Using these data, a screening level risk assessment for CCBs will be conducted. This will include a comparison to background and consideration of arsenic bioavailability. An evaluation of chemical and physical CCB data by type of CCB, as appropriate, and by location may be made to determine if there are subsets of CCBs with significantly differing characteristics. If there are significant differences, the preliminary screening level risk assessment would be conducted separately for the relevant subpopulations. The results will be used to determine whether further investigation or evaluation of CCBs for human health risk is needed. It will focus on what areas and what data warrant further, more detailed and more location-specific evaluation. If the total preliminary screening level risk does not exceed target risk levels or if constituent concentrations are consistent with background, no further evaluation is necessary, including no need to further delineate CCB emplacement in the Area of Investigation. The HHRA WP provides the methodology for conducting the more detailed HHRA.

4.5 Phased Approach to ERA Exposure Pathways

The first step of the ERA is the Screening Level Ecological Risk Assessment (SERA). For the Pines Area of Investigation SERA, the evaluation of ecological exposure pathways and relevant receptors will be divided into two parts: an aquatic evaluation and a terrestrial evaluation, each having separate sampling and analysis events. The aquatic and terrestrial investigations are dependent upon data collected in the phased media investigations described above. Therefore the SERA will be finalized only after the completion of the FSP sampling and evaluation.

The initial aquatic evaluation will focus on the exposure pathways associated with surface water and sediments in the Brown Ditch system and two man-made ponds adjacent to areas of historic fill placement. Ecological receptors to be evaluated include aquatic plants, fish, amphibians, benthic invertebrates and avian and mammalian wildlife.

The need for additional aquatic sampling and assessment will be determined based on the results of the groundwater investigations. Proposed groundwater investigations include study of groundwater levels, groundwater chemistry, groundwater flow directions, and interactions with surface water.

Based on the refined characterization of groundwater migration and chemistry, additional waterbodies of potential interest may be identified, including wetland areas or ponds not previously evaluated. These waterbodies would be sampled and assessed in an additional phase of investigation, similar to the work proposed in the FSP.

The scope of the terrestrial investigation will be based on the identification of areas of ecological habitat coupled with the visual inspection for CCBs as described in the FSP. The visual inspection will identify where suspected CCBs may be present along streets and in residential areas, and in other areas of the Area of Investigation. Based on the visual inspection under the FSP, areas of suspected CCBs will be evaluated to determine if the materials are CCBs. The next step is to evaluate whether there are areas of overlap between the areas of CCBs and ecological habitats. This is critical because potential ecological risk can occur only in areas where CCBs are present that overlap with areas of ecological habitat. Based on the degree of overlap, further evaluation of shallow CCBs (including potential additional sampling) may be required for completion of the terrestrial evaluation. To identify upland habitats, methods applicable for general habitat evaluation will be used (non-wetland or mixed wetland/upland habitats), principally an integrated use of desk-top delineation of upland habitats from available maps and aerial photographs coupled with a one-day inspection and confirmation. The resulting habitat maps will combine aerial photos or Geographic Information System (GIS) figures, with vegetative cover and specific habitat types mapped.

4.6 Reporting

Under the RI/FS, reports or technical memoranda will be prepared at several milestones. These deliverables and their general contents are discussed in the following sections.

4.6.1 RI Report

Within 90 calendar days following collection of the final field sample, the Respondents will submit to USEPA a draft RI Report presenting the data collected during the RI. The RI Report will present the characterization of the Pines Area of Investigation, including a description of the area and background; previous removal actions; a description of the physical systems (geology, groundwater, surface water bodies, CCB materials, etc.); nature and extent of CCB-derived constituents in groundwater and other media that may be impacted; potential receptors that may be exposed to CCB-derived constituents; and the fate and transport of CCB-derived constituents. This information will be used to update the CSM for the Area of Investigation.

The RI Report will be developed to be consistent with the requirements of AOC II and the SOW. The Respondents will use Section 3 of the RI/FS Guidance Manual (USEPA, 1988) to guide the RI Report format and the RI Report contents. Components that will be included in the RI report are described below.

Executive Summary. The Executive Summary of the RI Report will provide a general overview of the contents of the report. It will contain a brief discussion of the Area of Investigation, the data collected, and the results of the RI.

Area Description and Background. The description of the Area of Investigation will include current and historical information.

Previous Removal Actions. The RI Report will describe previous removal actions at the Area of Investigation.

Description of Physical Systems. The RI Report will present the characterization of the physical system in which the CCB materials are located and in which they may migrate. The description of the physical system is necessary to understand the current and potential future distribution of CCB-derived constituents; this information will be used in the HHRA and ERA. Aspects of the physical system will include: characterization of the CCB materials, geology, hydrogeology, groundwater-surface water interactions, and characterization of ecological resources.

Nature and Extent of CCB-Derived Constituents. The RI report will present a description of the CCB-derived constituents present in groundwater and any other impacted media and their distribution in those media.

Analytical Data. Available data will be presented, including, but not limited to, results of sample collection from soil, groundwater, surface water, and sediments. Historical data gaps that were identified and the measures taken to develop all necessary, additional data will be discussed.

Groundwater Fate and Transport. The RI report will present a description of the potential migration of CCB-derived constituents in groundwater and other impacted media along with the fate of these constituents in environmental media.

Potential Receptors. The potential receptors that may be exposed to CCB-derived constituents will be identified.

4.6.2 Human Health and Ecological Risk Assessments and Reports

Within 60 days of USEPA approval of the RI Report, the Respondents will submit to USEPA the draft HHRA and ERA Reports. The purpose of these reports is to evaluate potential current and reasonably foreseeable future risks from CCB-derived constituents to human health and the environment. The data collected during the RI will be used as the basis to evaluate the potential risks. Further detail on the HHRA and ERA reports is provided in Volumes 5 and 6 of this RI/FS Work Plan, respectively.

4.6.3 Feasibility Study Technical Memoranda and Report

The Feasibility Study (FS) for the Pines Area of Investigation will be presented to USEPA in two Technical Memoranda and one report. These deliverables are discussed below.

4.6.3.1 Remedial Action Objectives Technical Memorandum

The first step in preparing the FS for the Pines Area of Investigation will be to develop Remedial Action Objectives (RAOs) and present them to the USEPA in a Remedial Action Objectives Technical Memorandum. This memorandum is due to the Agency 30 days after approval of the HHRA report and the ERA report. RAOs are medium-specific goals that are established to protect human health and the environment and to comply with Applicable or Relevant and Appropriate Requirements (ARARs) and guidance to be considered (TBCs). RAOs will consider the following:

- Prevention or abatement, to the extent practicable, of unacceptable risks (current and/or reasonably foreseeable future) to nearby human populations (including workers), animals, or the food chain from hazardous substances, pollutants, or constituents associated with CCBs.
- Prevention or abatement, to the extent practicable, of unacceptable risks (current and/or reasonably foreseeable future) associated with CCBs due to exposures including drinking water supplies and ecosystems.
- Acceptable constituent levels, or range of levels, for appropriate location-specific exposure routes.
- Mitigation or abatement, to the extent practicable, of other situations or factors that may pose threats to public health, welfare, or the environment.
- An evaluation of ARARs/TBCs.

Ultimately, the RAOs will specify the constituents of concern and the media of interest; exposure pathways and receptors; and an acceptable constituent level or range of levels (at particular locations for each exposure route).

The Respondents will address and incorporate USEPA's comments on the Remedial Action Objectives Technical Memorandum in the Alternatives Screening Technical Memorandum (see below).

4.6.3.2 Alternatives Screening Technical Memorandum

The next step of the FS is to develop and evaluate a range of appropriate remedial alternatives that, at a minimum, ensure protection of human health and the environment and meet the RAOs. An Alternatives Screening Technical Memorandum will be prepared to document the methods, the

rationale, and the results of the alternatives screening process, and submitted 60 days after receipt of USEPA comments on the Remedial Action Objectives Technical Memorandum. The components of the Alternatives Screening Technical Memorandum are listed below.

- General response actions;
- Areas or volumes of media of concern;
- Identify, screen, and document remedial technologies;
- Assemble and document alternatives; and
- Conduct and document screening evaluation of each alternative.

The respondents will address and incorporate USEPA's comments on the Alternatives Screening Technical Memorandum in the FS Report (see below).

4.6.3.3 FS Report

Based on the outcome of the remedial alternatives screening process, an FS will be performed to provide a detailed evaluation of remedial action alternatives, as approved by USEPA. The draft FS report will be submitted 90 days after USEPA approves the Alternatives Screening Technical Memorandum. The FS will provide the USEPA with the information needed to select an appropriate remedial action(s) for the Area of Investigation, and will include a detailed analysis and a comparative analysis.

Detailed Analysis of Remedial Action Alternatives: A detailed analysis of the remedial action alternatives identified in the Alternatives Screening Technical Memorandum will be conducted. The detailed analysis will include an analysis of each remedial action alternative against the nine evaluation criteria set forth in the National Oil and Hazardous Substances Pollution Contingency Plan (Final Rule, 55FR8666, 1990). These criteria are: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance.

Criteria 8 and 9 are considered after the FS report is released to the general public. As specified in the SOW, USEPA will address criteria (8) state (or support agency) acceptance and (9) community acceptance.

For each remedial action alternative, the following will be provided:

(1) A description of the alternative outlining the remediation strategy involved, and identifying the key ARARs associated with the alternative; and

(2) A discussion of the individual assessment for the remedial action alternatives.

Comparative Analysis of Alternatives: A comparative analysis of the remedial action alternatives will be performed. That is, each remedial action alternative will be compared against the other remedial action alternatives using seven of the nine evaluation criteria as a basis of comparison.

The FS Report will be consistent with AOC II and the SOW, and will include the components provided in Section 6 of the RI/FS Guidance (USEPA, 1988).

5.0 SCHEDULE

This RI/FS Work Plan provides the foundation for how the RI, HHRA, ERA, and FS will be completed. The schedule for these activities, as per the SOW, is outlined below.

Deliverable	Deadline as per SOW
Task 3: Remedial Investigation	As described in USEPA approved RI/FS Workplan, Volume 2, FSP
Task 4: Draft RI Report	90 days after collection of the final field sample as specified in the schedule in the approved RI/FS Work Plan, Volume 2, FSP
Task 4: Final RI Report	60 days after receipt of USEPA comments on draft RI Report
Task 5: Draft Human Health and Ecological Risk Assessment Reports	60 days after USEPA approval of the Final RI Report
Task 5: Final Human Health and Ecological Risk Assessment Reports	60 days after receipt of USEPA comments on draft Human Health and Ecological Risk Assessment Reports
Task 6: Remedial Action Objectives Technical Memorandum	30 days after USEPA approval of the Human Health and Ecological Risk Assessment Reports
Task 7: Alternatives Screening Technical Memorandum	60 days after USEPA approval of Remedial Action Objectives Technical Memorandum
Task 8: Draft FS Report	90 days after USEPA approval of Alternatives Screening Technical Memorandum
Task 8: Final FS Report	60 days after receipt of USEPA comments on draft FS Report

6.0 PROJECT ORGANIZATION AND MANAGEMENT

The lines of authority and communication for this project are presented in the project organization chart (Figure 4). The responsibilities of key personnel are outlined below.

Respondents' Project Managers

The Project Managers for the individual Respondents, Mr. Dan Sullivan of NiSource and Ms. Val Blumenfeld of Brown Inc., will be responsible for project direction and decisions concerning technical issues and strategies, budget, and schedule.

ENSR Project Manager

The ENSR Project Manager, Lisa JN Bradley, PhD, DABT, will be responsible for technical, financial, and scheduling matters. The ENSR Project Manager also will be responsible for project coordination between the Respondents and USEPA as required.

ENSR Senior Reviewer

The ENSR Senior Reviewer, Doug Simmons, PG, will be kept apprised of project objectives and progress, and will review all project deliverables prior to distribution.

ENSR Quality Assurance (QA) Officer

The ENSR QA Officer for the Pines Area of Investigation project, Debra McGrath, will have overall QA oversight for the project and will report to the ENSR Project Manager. Specific responsibilities include:

- Reviewing and approving QA procedures;
- Ensuring the QA audits of the various phases of the project are conducted as required by this RI/FS Work Plan;
- Providing QA technical assistance to the field staff;
- Ensuring that data validation is conducted as required by this RI/FS Work Plan; and,
- Reporting on the adequacy and efficiency of the QA Program to the ENSR Project Manager.

ENSR Regional Health and Safety Officer

The ENSR Regional Health and Safety Officer, Joe Sanders, MS, CIH, will coordinate and provide oversight for the health and safety issues at the Area of Investigation. Mr. Sanders is responsible for the development of the HASP for the RI/FS Work Plan, which is provided as Volume 4 of the RI/FS Work Plan.

ENSR RI Task Manager

The ENSR RI Task Manager, Elizabeth Perry, PG, will have the overall responsibility for implementing the sampling activities described in this RI/FS Work Plan and for reporting these activities in the RI Report. Ms. Perry is certified as a Professional Geologist in the State of Indiana. Specific responsibilities of the ENSR RI Task Manager will include, but not be limited to, the following:

- Providing personnel and equipment for RI/FS activities;
- Ensuring that ENSR's associates perform their designated duties in accordance with the RI/FS Work Plan;
- Ensuring required quality assurance/quality control procedures are properly implemented and documented;
- Ensuring the sampling activities are completed within the approved schedule;
- Communicating any request for modifications to the approved RI/FS Work Plan to the ENSR Project Manager; and
- Promptly notifying the ENSR Project Manager if unforeseen field conditions and/or analytical issues are encountered that affect achievement of the project data quality objectives.

ENSR Field Operations Leader

The Field Operations Leader for the Pines Area of Investigation will be responsible for implementing sampling activities according to the RI/FS Work Plan. Other responsibilities may include gathering and analyzing data, and preparing pertinent sections of the RI Report. The Field Operations Leader will report directly to the ENSR RI Task Manager.

ENSR Database/GIS Manager

The ENSR Database/Geographic Information System (GIS) Manager, Heather Wayne, will be responsible for maintaining the electronic database of all analytical data collected as a part of the

RI/FS for the Pines Area of Investigation. The data will be collected and stored as per the requirements outlined in the QMP (Volume 7) and the QAPP (Volume 3) of this RI/FS Work Plan.

ENSR HHRA Task Manager

The ENSR HHRA Tasks Managers are Lisa JN Bradley, PhD, DABT and Kelly Sullivan, MS. Dr. Bradley will provide oversight of all aspects of the HHRA, while Ms. Sullivan will be responsible for conducting the HHRA.

ENSR ERA Task Manager

The ENSR ERA Task Manager, David Mitchell, PhD, is responsible for the overall management of the RI as it pertains to ecological characterization, and the ERA.

ENSR FS Task Manager

The ENSR FS Task Manager, Shannon Gleason, PE, will be responsible for conducting the FS for the Pines Area of Investigation. This includes preparing the Remedial Action Objectives Technical Memorandum, the Alternatives Screening Technical Memorandum, and the FS Report.

7.0 REFERENCES

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